

## **EXHIBIT 3**

Serial No. 10/870,217

Page 1 of 11

**IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE**

**Patent Application**

**Inventor(s):** Govinda N. Rajan et al.  
**Case:** G. N. Rajan 5-1 (LCNT/125578)  
**Serial No.:** 10/870,217                      **Group Art Unit:** 2619  
**Filed:** 06/17/2004                      **Confirmation #:** 8666  
**Examiner:** Jagannathan, Melanie  
**Title:** METHOD AND APPARATUS FOR DETERMINATION OF  
NETWORK TOPOLOGY

**MAIL STOP AMENDMENT  
COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450**

**SIR:**

**RESPONSE AMENDMENT**

In response to the non-final Office Action mailed January 9, 2008, please reconsider the above-identified patent application as follows.

In the event that an extension of time is required for this response to be considered timely, and a petition therefor does not otherwise accompany this response, any necessary extension of time is hereby petitioned for.

The Commissioner is authorized to charge any fees due, including extension of time and excess claim fees, to counsel's Deposit Account No. 20-0782/LCNT/**125578**.

Serial No. 10/870,217

Page 2 of 11

**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

- 1           1.       (original) A method for managing a communications network having a  
2   plurality of areas, each of said plurality of areas having associated with it a respective  
3   group of nodes, said method comprising:  
4                adapting a single sniffer to collect information from nodes associated with  
5   at least two selected areas of said network; and  
6                determining a topology of at least a portion of said network using said  
7   collected information.
- 1           2.       (original) The method of claim 1 wherein the step of adapting said single  
2   sniffer further comprises connecting said sniffer to a central location of said network.
- 1           3.       (original) The method of claim 2, wherein said sniffer is part of an existing  
2   network management system of said network.
- 1           4.       (original) The method of claim 2 wherein said sniffer is a stand-alone  
2   device connected independently to said central location of said network.
- 1           5.       (original) The method of claim 2 wherein the step of adapting the single  
2   sniffer further comprises configuring said centrally connected network sniffer as a  
3   partitioned designated node of a selected area.
- 1           6.       (original) The method of claim 5, wherein said selected area further  
2   comprises an L1 area and an L2 area; and in the case of an L1 area being selected, said

Serial No. 10/870,217

Page 3 of 11

3 method further comprises configuring said sniffer as a partition designated L2 node of the  
4 selected L1 area.

1 7. (original) The method of claim 1, wherein said information from said  
2 nodes comprises link state messages.

1 8. (original) The method of claim 1 wherein said collected information is  
2 based upon an existing network protocol.

1 9. (original) The method of claim 8 wherein said existing network protocol is  
2 part of ISO-IEC 10589:2001.

1 10. (original) The method of claim 1 wherein the step of determining the  
2 topology further comprises collecting information about a first selected area and  
3 calculating the topology according to said first selected area and then subsequently  
4 receiving information about a second or more selected areas and recalculating the  
5 topology based upon each new area.

1 11. (original) The method of claim 1 wherein the step of determining the  
2 topology further comprises receiving information from all nodes of all areas in the  
3 network and performing a single topology calculation.

1 12. (original) The method of claim 1, wherein said areas are selected by  
2 sequentially configuring said sniffer as a partition designated L2 node of an L1 area to be  
3 selected.

1 13. (original) A computer readable medium containing a program which,  
2 when executed, performs an operation for managing a communications network having a  
3 plurality of areas said operation comprising:  
4 adapting a single sniffer to collect information from nodes associated with at least  
5 two selected areas of said network; and

Serial No. 10/870,217

Page 4 of 11

6                   determining a topology of at least a portion of said network using said  
7 collected information.

1                   14.     (original) The computer readable medium of claim 13 wherein the  
2 step of adapting said single sniffer further comprises connecting said sniffer to a central  
3 location of said network.

1                   15.     (original) The computer readable medium of claim 14, wherein  
2 said sniffer is part of an existing network management system of said network.

1                   16.     (original) The computer readable medium of claim 14 wherein said  
2 sniffer is a stand-alone device connected independently to said central location of said  
3 network.

1                   17.     (original) The computer readable medium of claim 14 wherein the  
2 step of adapting the single sniffer further comprises configuring said centrally connected  
3 network sniffer as a partitioned designated node of a selected area.

1                   18.     (original) The computer readable medium of claim 17, wherein  
2 said selected area further comprises an L1 area and an L2 area; and in the case of an L1  
3 area being selected, said method further comprises configuring said sniffer as a partition  
4 designated L2 node of the selected L1 area.

1                   19.     (original) The computer readable medium of claim 13, wherein  
2 said information from said nodes comprises link state messages.

1                   20.     (original) The computer readable medium of claim 13 wherein said  
2 collected information is based upon an existing network protocol.

1                   21.     (original) The computer readable medium of claim 20 wherein said  
2 existing network protocol is part of ISO-IEC 10589:2001.



Serial No. 10/870,217

Page 5 of 11

1                   22.     (original) The computer readable medium of claim 13 wherein the  
2 step of determining the topology further comprises collecting information about a first  
3 selected area and calculating the topology according to said first selected area and then  
4 subsequently receiving information about a second or more selected areas and  
5 recalculating the topology based upon each new area.

1                   23.     (original) The computer readable medium of claim 13 wherein the  
2 step of determining the topology further comprises receiving information from all nodes  
3 of all areas in the network and performing a single topology calculation.

1                   24.     (original) The computer readable medium of claim 13, wherein  
2 said areas are selected by sequentially configuring said sniffer as a partition designated  
3 L2 node of an L1 area to be selected.

1                   25.     (original) A communications network having improved topology  
2 determination means comprising:  
3                   an inner nodal area;  
4                   one or more outer nodal areas connected to the inner nodal area; and  
5                   means for detecting topology forming information about all nodes in the inner and  
6 outer nodal areas from a central location in the communications network.

1                   26.     (original) The communications network of claim 25 wherein said  
2 means for detecting the topology forming information is a single sniffer connected to the  
3 inner nodal area.

1                   27.     (original) The communications network of claim 26 wherein the  
2 sniffer is part of an existing network management system of said network.

1                   28.     (original) The communications network of claim 26 wherein the  
2 sniffer apparatus is a stand-alone device connected independently to the central location  
3 of the network.

Serial No. 10/870,217

Page 6 of 11

1                   29.   (original) The communications network of claim 26 wherein the  
2 sniffer is instructed to function as a partition designated node in an existing network  
3 protocol.

1                   30.   (original) The communications network of claim 29 wherein the  
2 existing network protocol is ISO-IEC 10589:2001.

Serial No. 10/870,217

Page 7 of 11

**Remarks**

Claims 1-30 are pending in the application.

Claims 1-8, 10-20, and 22-298 are rejected under 35 U.S.C. §102(e) as being anticipated by Kao et al. U.S. Patent No. 7,054,951, hereinafter "Kao."

Claims 9, 21, and 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kao in view of Govindarajan et al. U.S. Patent No. 7,263,552, hereinafter "Govindarajan."

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., just to avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, because a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously



Serial No. 10/870,217

Page 8 of 11

depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

### **Rejection Under 35 U.S.C. §102**

Claims 1-8, 10-20, and 22-29 are rejected under 35 U.S.C. §102(e) as being anticipated by Kao. The rejection is traversed.

*Anticipation requires disclosure in a single prior art reference of each and every element of the claimed invention, arranged as in the claim. The Kao reference fails to disclose each and every element of the claimed invention, as arranged in independent claim 1.*

Kao discloses a dual-ring topology network. In this type of network, each of the nodes is connected to the other nodes in the network, with two connections to each of these nodes. Such connections form a double ring along all the nodes in the network. Kao also discloses a topology discovery process invoked when a new node is added to the network. Specifically, the added node generates a topology discovery packet which traverses the network collecting information along the way and then returns to the added node. In this manner, the added node receives topology information regarding other nodes in the network, while the other nodes in the network receive topology information regarding the added node (see col. 8; lines 55-66).

However, Kao does not disclose at least “adopting a single sniffer to collect information” used to determine the network topology. Instead, in Kao’s arrangement, the nodes themselves determine the network topology. The Examiner interprets a network node in an active sniffer state to be a single sniffer. Applicants disagree.

Kao discloses the active sniffer state as a part of a ring identifier process. To identify rings identifiers, each node for each ring invokes a state machine. The state machine includes four states: initialization state, an active sniffer state, a client sniffer state, and a normal state (see col. 11, lines 35-40). During the initialization state a node sends a query packet containing a proposed ring identifier. During the active sniffer state, the node receives query packets and/or response. If, based on the received query packets and/or response, the node determines the ring identifier, the node transitions into the

Serial No. 10/870,217

Page 9 of 11

normal state. Otherwise, the node transitions into the active client sniffer state to wait for a broadcast identifier. If such identifier is received, the node transitions to the normal state. Otherwise, the node transitions back into the initialization state. The node stays in the normal state unless mismatching broadcast identifier is received.

As known to a person skilled in the art, a sniffer is a computer software or hardware that can intercept and log traffic flowing through a network. The sniffer identifies information of interest within an information stream or bit stream, captures it and eventually decodes its content, while allowing the stream to continue its flow. The sniffer itself or its presence does not directly affect the stream or the network characteristics.

In contrast, Kao discloses network nodes that may determine ring identifiers. During the active sniffer state, such network nodes merely may receive and interpret information. However, these nodes are part of the network, not depending on the state they are in. Unlike sniffer, removing which does not directly affect the network characteristics, removing one of the nodes alters the network. A network missing a node is a network of new topology. Accordingly, the network node, even in the active sniffer state, cannot be a sniffer.

Furthermore, according to Applicants' claim 1, a single sniffer is adapted to collect information from nodes associated with areas of the network. However, as taught by Kao, each node of the network for each ring invokes a state machine to determine the ring identifiers. A single node determines the ring identifiers only for one node, namely itself. The single node does not determine ring identifiers for other nodes of the network. Therefore, Kao fails to teach or suggest a single sniffer.

Moreover, Kao fails to teach "at least two selected areas of said network." The Examiner equates such areas with Kao's network rings. Applicants disagree. As described above, Kao discloses a dual-ring topology where each ring is formed by the same nodes as the other ring. In contrast, "selected areas" of Applicants claim 1 are formed by different nodes. In other words, each selected area contains at least some nodes that another selected area does not contain (see, e.g., Applicants' specification, page 4, line 3 – page 5, line 14).

Serial No. 10/870,217

Page 10 of 11

Accordingly, Kao fails to teach or suggest “adapting a single sniffer to collect information from nodes associated with at least two selected areas of said network,” as recited in independent claim 1. Therefore, Kao fails to disclose each and every element of the claimed invention, as arranged in Applicants' independent claim 1. As such, independent claim 1 is not anticipated by Kao and is allowable under 35 U.S.C. §102. Independent claims 13 and 25 recite relevant limitations similar to those recited in independent claim 1 and, as such, and at least for the same reasons as discussed above, these independent claims also are not anticipated by Kao and are allowable under 35 U.S.C. §102.

Because all of the dependent claims depending from the independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Kao.

Therefore, Applicants' claims 1-8, 10-20, and 22-29 are allowable over Kao under 35 U.S.C. §102. The Examiner is respectfully requested to withdraw the rejection.

#### **Rejection Under 35 U.S.C. §103(a)**

Claims 9, 21, and 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kao in view of Govindarajan. The rejection is traversed.

Each of these grounds of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. §102 given Kao. Since the rejection under 35 U.S.C. §102 given Kao has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Govindarajan supplies that which is missing from Kao to render the independent claims anticipated, these grounds of rejection cannot be maintained.

Therefore, Applicants' claims 9, 21, and 30 are allowable over Kao in view of Govindarajan under 35 U.S.C. §103(a). The Examiner is respectfully requested to withdraw the rejection.

Serial No. 10/870,217

Page 11 of 11

**Conclusion**

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

Dated: \_\_\_\_\_

3/31/08



\_\_\_\_\_  
Eamon J. Wall  
Registration No. 39,414  
Attorney for Applicants

PATTERSON & SHERIDAN, LLP  
595 Shrewsbury Avenue, Suite 100  
Shrewsbury, New Jersey 07702  
Telephone: 732-530-9404  
Facsimile: 732-530-9808



## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	3091398
<b>Application Number:</b>	10870217
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	8666
<b>Title of Invention:</b>	Method and apparatus for determination of network topology
<b>First Named Inventor/Applicant Name:</b>	Govinda N. Rajan
<b>Customer Number:</b>	46363
<b>Filer:</b>	Eamon J. Wall/Carol Wilson
<b>Filer Authorized By:</b>	Eamon J. Wall
<b>Attorney Docket Number:</b>	G. N. RAJAN 5-1 (LCNT/125)
<b>Receipt Date:</b>	02-APR-2008
<b>Filing Date:</b>	17-JUN-2004
<b>Time Stamp:</b>	13:59:08
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
------------------------	----

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		LCNT125578eAmend4_2_08.pdf	401737 8a1bf7b9388d4cdad4340dc3a5535b6924b300ee	yes	11



## Multipart Description/PDF files in .zip description

	Document Description	Start	End
	Amendment - After Non-Final Rejection	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	11

**Warnings:****Information:****Total Files Size (in bytes):**

401737

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.